Terminal Operation 3

This chapter illustrates the terminal screens and explains how to use the menus to configure and manage the Routermate 56/64, including the parameter options and descriptions.

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Screen Structure

Figure 3-1 illustrates the screen structure for the terminal management screens.

Brief descriptions of the menus are provided below.

Main Menu - top level menu from which all subsequent menus are selected.

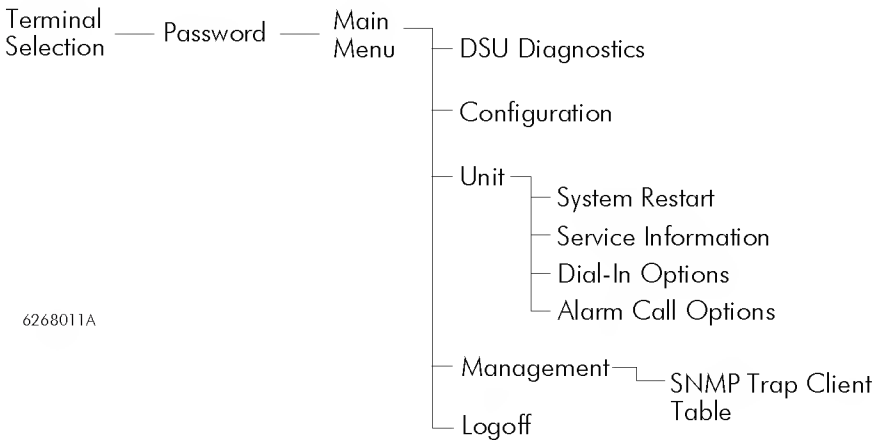
Diagnostics - initiate and monitor diagnostic tests and monitor statistics and line status on the CSU/DSU.

Configuration - configure parameters for the network and DTE interfaces.

Unit - create or change screen header text, set the unit's inactivity timeout, and configure the console password. Access the System Restart and Service Information screens. Access the Dial-In and Alarm Call option screens (if a modem is installed).

Management - configure parameters for SNMP and Telnet management.

Figure 3-1 *Screen Structure*



Keys and Conventions

Prompts at the bottom of each screen instruct the user which keys to use to:

1. Position the cursor
2. Edit parameters
3. Execute commands
4. Access other screens

See the description of the most frequently used keys in Table 3-1 on page 3-4.

Edit Fields

To configure a parameter by typing a value:

1. Press **[CR]** to highlight the field.
2. Type the value.
3. Press **[CR]** again to exit the field.

To restore the parameter to its original contents, press **[Esc]** before exiting the field.

To edit existing text in a field that can be edited:

1. Move the cursor to the field and press **[Ctrl-E]** to highlight the field.
2. Use the arrow keys to move the cursor within the field.
3. Type over the existing information.
4. Press **[CR]** to exit the field.

To delete existing text from a field that can be edited:

1. Move the cursor to the field and press **[CR]**.
2. Press **[Space Bar]**.
3. Press **[CR]** again.

Selecting from multiple options

1. Move the cursor to the parameter.
2. Press **[CR]** to toggle/scroll through the available options.
3. When the desired option is displayed, either move the cursor to the next parameter using **[Space Bar]** or **[Backspace]**, or exit the screen.

To restore the parameter to its original contents, press **[Esc]** before exiting the field.

Saving Changes

Press **[X]** to exit from a screen. If you have modified any parameter, you are prompted:

```
Confirm this configuration?
   No    Yes
```

The default is **No**. Press **[CR]** or **N** to exit the current screen without saving the changes. If you do want to save the changes, press **Y**.

Table 3-1 describes the keys used to access the management screens, select and edit parameters, and navigate between screens.

Table 3-1 *Frequently Used Keys*

KEY	FUNCTION
Move Around in Screens	
[Space Bar]	cursor down
[Backspace]	cursor up
[Ctrl-N]	Terminal Selection screen
[Ctrl-O]	re-draw screen
[X]	exit to previous screen
[Ctrl-T]	return to Main Menu
Type an Entry	
[CR]	select field
[Backspace]	delete character left
[Esc]	restore original setting
[Ctrl-E]	highlight field, edit text
[CR][Space Bar][CR]	delete current contents
Select From List	
[CR]	scroll/toggle through list
[Esc]	restore edited field to its original setting
[Space Bar]	move to next field

Certain prompts will change to correspond to the function or operation. An example is shown below:

FUNCTION/OPERATION	PROMPT
Edit an entry	Edit Field = [CR]
Select from multiple options	Scroll Through Options = [CR]
Select another menu	Select Menu = [CR]

Terminal Selection

To configure the Routermate, connect a terminal to the **CONSOLE** interface as described in *Terminal Management* on page 2-7.

Configure the terminal for:

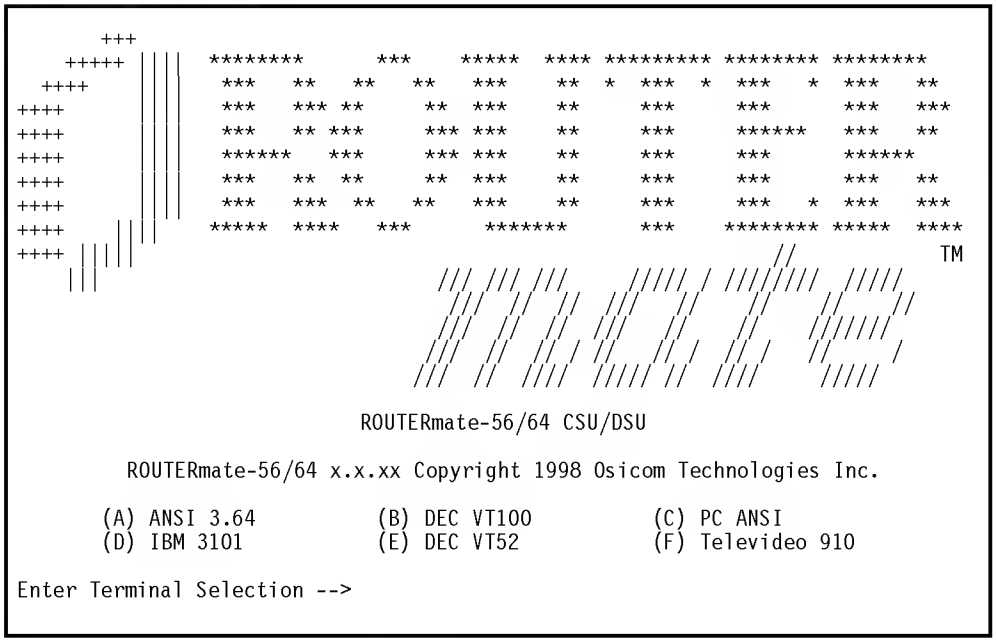
- Rate: 9600 bps
- Mode: full duplex
- Character: 8 bits
- Parity: none
- Stop bits: 1
- Flow control: DC1/DC3 (Xon/Xoff)

The **CONSOLE** interface is fixed at 9600 bps, 8 character bits, 1 stop bit, and no parity.

When the unit is turned on, there is a brief delay as internal diagnostics run automatically. Then the Terminal Selection screen appears (Figure 3-2).

If the Terminal Selection screen does not appear, press **[Ctrl-N]**. Type the letter for the type of terminal that is connected to the unit, as shown on the screen. If the terminal displays garbled characters after the terminal type is selected, press **[CTRL-N]** to return to the Terminal Selection screen, where you can select a different terminal type.

Figure 3-2 *Terminal Selection Screen*



Telnet: When a Telnet connection is used to access the management screens, the terminal type usually can be determined automatically. If not, the Terminal Selection screen is displayed. The user has three attempts or 30 seconds to enter the password before the session is disconnected.

Dial-In: During dial-in management, the Terminal Selection screen is by-passed if no Dial-in password has been configured, or if a Dial-in password has been configured and **Terminal Type** Select is set to *Disabled*.

Password

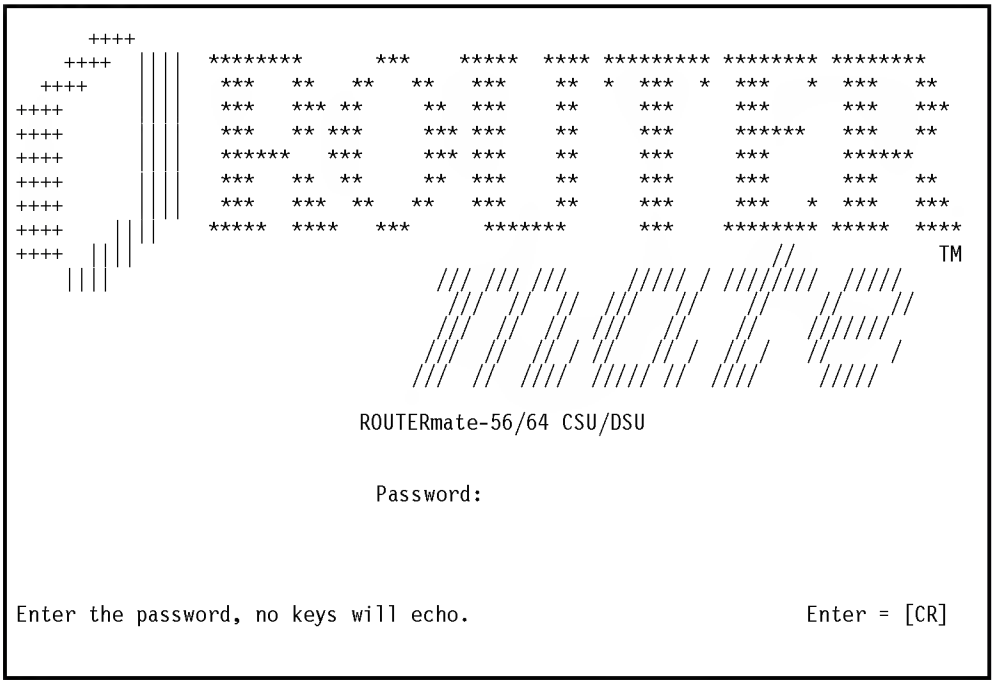
The management screens are password protected. A password prompt appears (Figure 3-3) after a terminal type is selected.

To access the Main Menu, type the password and press [CR].

If no password has been configured, simply press [CR], which is the default password. Configure the password at the *Unit Menu* on page 3-19.

Telnet: The Telnet user has thirty seconds from the time the Telnet session is connected to enter the password, or the session is disconnected.

Figure 3-3 *Password Screen*



Device Selection

The Device Selection Menu (Figure 3-4) is displayed when a call is placed on the optional integral modem.

When no Dial-in password has been configured, this is the first screen displayed.

When a Dial-in password has been configured, this screen is displayed after the Dial-in password is correctly entered.

Do either of the following to make a selection:

- Type the number for a selection.
- Move the cursor to a selection and press **[CR]**.

Select one of the following:

Aux Port 0: Device 0 - access the Console/Aux port of a router or other compatible device connected to the **OUT 0** port on the console adapter.

Aux Port 1: Device 1 - access the management screens of an FPX4802/DES Frame Relay Encryptor or other ASCII device with a 3-wire interface connected to the **OUT 1** port on the console adapter.

56/64 CSU/DSU - access the Routermate-56/64 Main Menu.

Logoff - disconnect from the integral modem.

Figure 3-4 *Device Selection Menu*

```
                    Osicom Technologies
                 ROUTERmate-56/64 CSU/DSU

                   Device Selection Menu



                     0 - Aux Port 0:  Device 0
                     1 - Aux Port 1:  Device 1
                     2 - 56/64 CSU/DSU
                     L - Logoff




Cursor Down = [Space Bar]        Reselect = [^N]          Select = [CR]
Cursor Up = [Backspace]          Redraw = [^N]               Exit = [X]
```

SCREEN PATH

Password Screen (*Enter Dial-in Password*) → Device Selection Menu

When the 56/64 CSU/DSU is selected, you are prompted:

Enter Password:

At this password prompt, enter the Console password. If no Console password has been configured, type **[CR]**. After correct entry, the Main Menu for the Routermate management screens is displayed.

Select **Logoff** at the Main Menu to disconnect from the Routermate management screens and return to the Device Selection Menu.

A dial-in management call locks out a local terminal connected to the Routermate's **CONSOLE** interface. While the call is connected, the local terminal displays this message:

```
**Local Terminal Locked**

Management Call
In Progress

Please wait until call disconnects
```

Hot Keys

During a dial-in management call, use hot keys to switch between managed devices, as follows:

[~] - Device Selection Menu.

[~][#] - for #, substitute a number 0-2 as follows:

- **0** - Device 0 connected to the console adapter **OUT 0** port (usually a router)
- **1** - Device 1 connected to the console adapter **OUT 1** port (either an FPX4802/DES Frame Relay Encryptor or ASCII device with a 3-wire interface [control leads are not supported on **OUT 1**])
- **2** - Routermate management screens

The tilde (~) is referred to as an escape character. Other ASCII characters can be configured as the escape character (see page 3-24).

After other data is entered, there must be a 200- millisecond pause before a hot key is used.

Type a number 0-2 within 1.5 seconds of typing the escape character or you go to the Device Selection Menu.

When a hot key is used to return to a device, it returns to the same screen it originally left.

Main Menu

The Main Menu (Figure 3-5) is displayed after the password is entered.

To make a selection from the Main Menu, press **[Space Bar]** or **[Backspace]** to position the cursor on the desired choice; then press **[CR]**.

Logoff

To exit the management screens type L, or position the cursor to Logoff and press **[CR]**.

This has one of the following effects, depending on how the management screens were accessed:

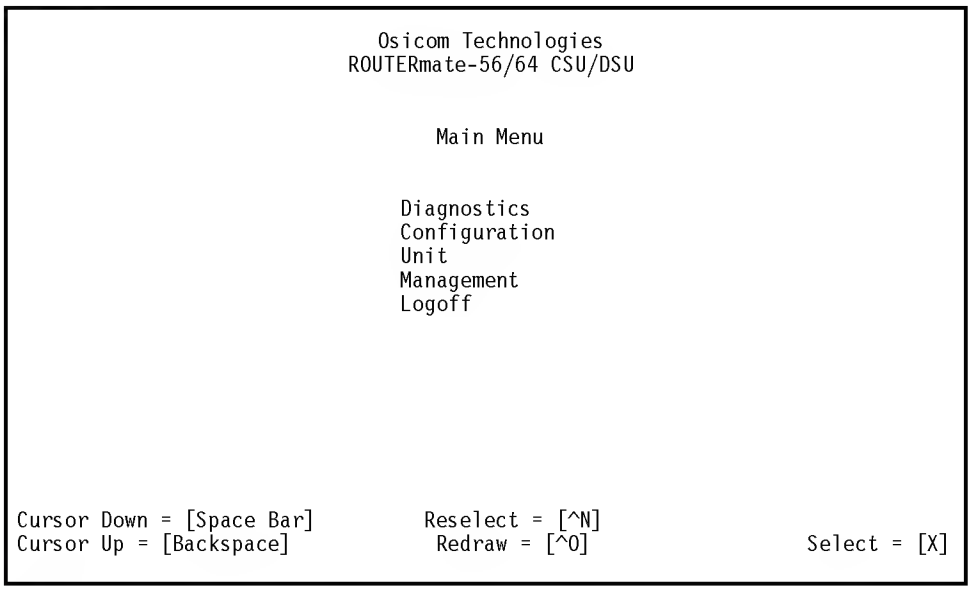
Terminal management - displays the password prompt.

Telnet - disconnects the Telnet session on the SNMP interface.

Dial-in Management - displays the Device Selection Menu.

Note *The screens reflect default parameters.*

Figure 3-5 *Main Menu*



SCREEN PATH

Terminal Selection	Password Screen		Main Menu
Select Terminal	*Enter Dial-in Password* *Enter Console Password*	Dial-in access must enter both passwords.	

Diagnostics

The Diagnostics Menu (Figure 3-6) lets you initiate loopback tests, monitor statistics, and observe control lead indicators.

To start a loopback, follow the key prompts at the bottom of the screen.

1. Position the cursor on the desired test.
2. Press **[CR]** to activate the selection. Within 5 seconds, the TM (Test Mode) status indicator displays On to indicate the test is in progress.
3. Press **[CR]** to turn off the test.

Loopback Tests

User Controls and Indicators

For each loop test, there is a Control and an Indicator.

On or *Off* (Control) - indicates whether or not a loop command has been selected.

Yes or *No* (Indicator) - indicates whether or not the unit has responded to the loop command.

Figure 3-6 *Diagnostics Menu*

```
                        Osicom Technologies
                      ROUTERmate-56/64 CSU/DSU

                             Diagnostics

              Local Loop:                     Off - No
              Local Loop + Selftest:          Off - No
              Digital Loop:                   Off - No
              Remote Digital Loop:            Off - No
              Remote Digital Loop + Selftest: Off - No
              Selftest:                       Off - No

              Seconds in Selftest:            000000
              Selftest Seconds in Error:      000000

              Line Status:                    Data Mode
              Line Length:                    0.0 km

              DTR    RTS    CTS    DSR    DCD    TM
              On     On     On     On     On     Off

Cursor Down = [Space Bar]                              Select = [CR]
Cursor Up = [Backspace]          Clear = [C]              Exit = [X]
```

SCREEN PATH

Main Menu *Diagnostics* → Diagnostics

Selftest

The CSU/DSU is equipped with a test pattern generator/comparator that can be conditioned to send a test pattern out the network interface. The test pattern generated is a pseudorandom 511 pattern.

The selftest can be used with an external test set connected to a CSU/DSU at the other end of the DDS line. When the test set sends the 511 pattern to the CSU/DSU, the received pattern is checked for errors.

Note *When both the local and remote units generate selftest (no other tests enabled), ignore initial errors caused by synchronization of test activation. Clear these errors by pressing* **[C]**.

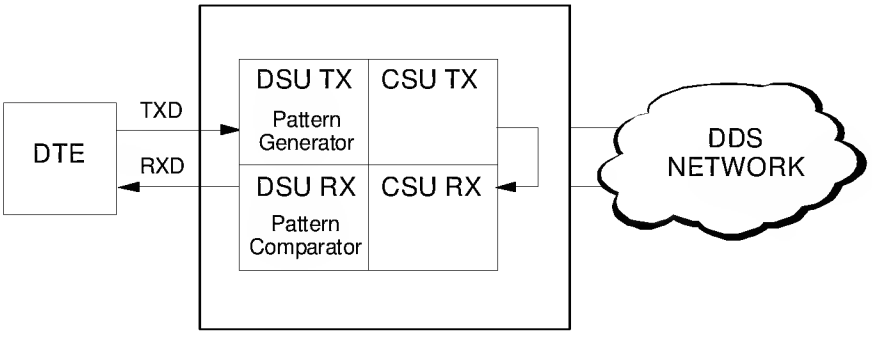
The selftest can be combined with Local Loop and Remote Digital Loop.

Local Loop

Local Loop (Figure 3-7) is a unidirectional loopback of the CSU/DSU line transmit and receive pairs. Data transmitted into the DTE interface on TXD is sent through the unit, looped back inside the unit; then sent back to the DTE interface and output on RXD.

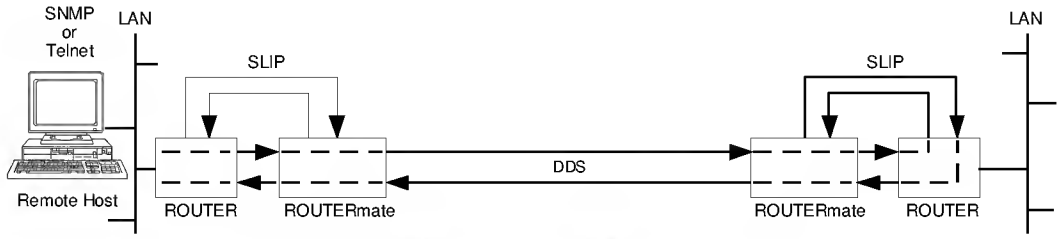
A test set or other device can be used to transmit data through the unit and compare the transmitted data with the received data. Local Loop tests the local DSU and the DSU DTE interface. This test can also be controlled from the DTE interface. This test is compliant with CCITT recommendation V.54, loop 3.

Figure 3-7 *Local Loop*

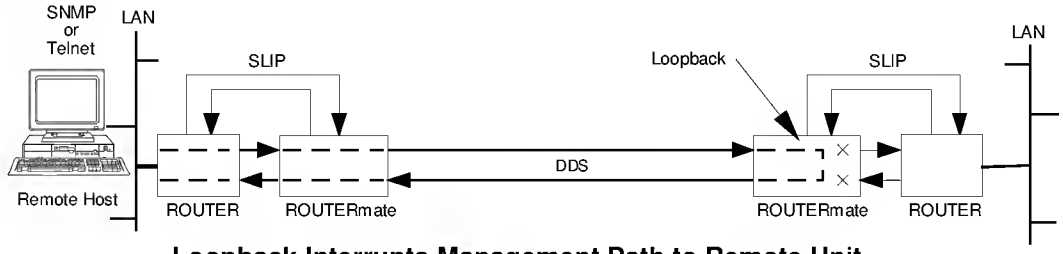


NOTE

If using SNMP or telnet management, initiating any diagnostic test from a host on a remote network will terminate communication with the unit if the path used to manage the unit is across the line to which the unit is attached. To resume communication in this instance, either turn off the test locally or reset the unit.



Remote Host SNMP and Telnet Management Path



Loopback Interrupts Management Path to Remote Unit

Local Loop + Selftest

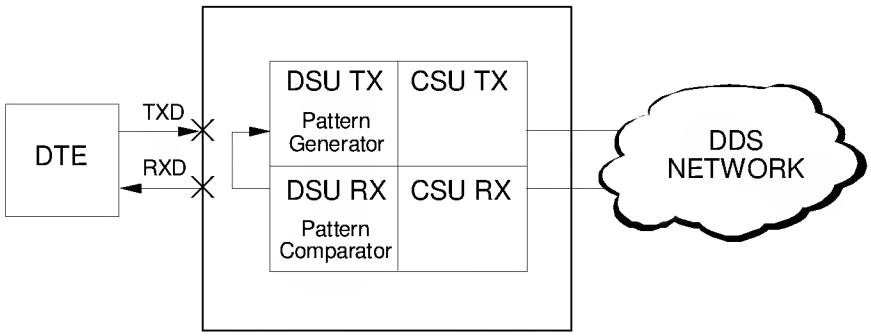
This test uses the Local Loop and combines it with the internal test pattern generator/ comparator as described in the previous section. The unit sends its own test pattern through the unit and checks the looped data for errors. This test checks the local DSU.

Note *When the Line Status is either OOS/OOF or Loss of Signal, only Local Loop and Local Loop + Selftest can be performed.*

Digital Loop

Digital Loop (Figure 3-8) is a unidirectional loop of the CSU/DSU. Data received from the network line is looped back at the local DSU DTE interface and retransmitted back down the network. This test checks the local DSU and the DDS line. The test pattern generator at the remote unit or an external test set connected to the remote unit can be used to transmit a test pattern and check for errors.

Figure 3-8 *Digital Loop*



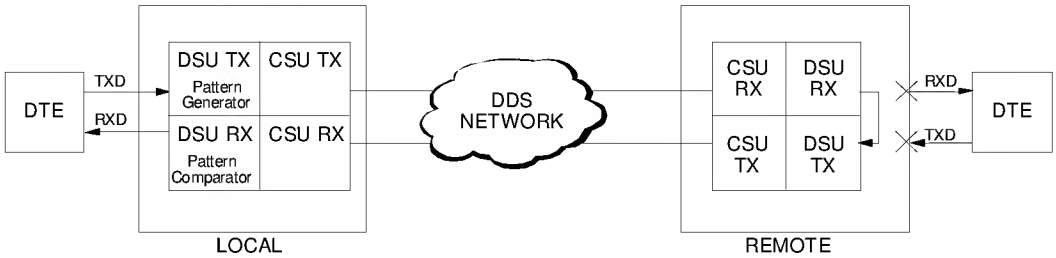
Remote Digital Loop

Remote Digital Loop (Figure 3-9) is a coordinated test of both units on the network. The originating unit sends a signal to the remote unit which engages Digital Loop (see Digital Loop above). RDL tests both units and the DDS line. This test can also be controlled from the DTE interface. This test is compliant with CCITT recommendation V.54, loop 2.

Data transmitted from the local DTE is sent over the line and looped at the remote unit. The remote Routermate sends the data back to the local DTE.

Note *In an LDM (Limited Distance Modem) application, RDL must be initiated from the unit set to Internal timing.*

Figure 3-9 *Remote Digital Loop*



Remote Digital Loop With Selftest

This test uses the Remote Digital Loop and combines it with an internal test pattern generator/comparator. The unit sends its own test pattern through the unit and checks the looped data for errors. If an error is detected, the RXD LED flashes on the local unit. This test checks the local DSU, the DDS line, and the remote DSU.

Note *In an LDM (Limited Distance Modem) application, RDL must be initiated from the unit set to internal timing.*

Telco Loopback Tests

In addition to the loopback test capabilities built into the Routermate 56/64, there are two loopbacks that can be issued by the Telco at the request of the customer:

CSU Loopback: A reversal of the sealing current on the NI line causes a loopback through the CSU section of the unit.

DSU Loopback: An inband alternating byte pattern sent by the Telco causes a loopback similar to the Local Digital Loop to occur. The DTE interface is not placed into loopback.

Statistics

Seconds in Selftest - the length of time the selftest has been enabled. The count is cleared when you press [C] or another selftest is selected.

Selftest Seconds in Error - displays the number of seconds during which a selftest error was detected.

Line Status

One or more of the following CSU/DSU Line Status conditions can appear, depending on current operating mode.

Control Mode Idle - The Routermate is receiving Control Mode Idle from the network.

Data Mode - The Routermate is receiving user's data from the remote unit.

Loss of Signal - No inbound signal is detected (32 cycles of all zeros will trigger this message).

OOS * - The Routermate is receiving the Out of Service signal from the Telco.

OOF * - The Routermate is receiving the Out of Frame signal from the Telco.

CSU Loop * - This is a test initiated by the Telco at the user's request. A polarity reversal of the sealing current on the Telco line causes a loopback through the CSU section of the unit.

DSU Loop * - This is a test initiated by the Telco at your request. An inband test pattern sent by the Telco causes a loopback similar to the Digital Loop to occur.

Data Mode Idle (Clear Channel only) - The Routermate is receiving carrier from the remote end.

Note * *These status conditions only occur on the DDS line; not when the Routermate is used as an LDM.*

Line Length

The estimated distance (in kilometers) from the Routermate 56/64 to the termination point (i.e.: Central Office).

Control Lead Status

The following control leads on the V.35 interface indicate On or Off:

DTR - Terminal Ready
RTS - Request to Send
CTS - Clear to Send
DSR - Data Set Ready
DCD - Data Carrier Detect

The TST (Test) LED indicator lights red when the Routermate is performing a diagnostic test.

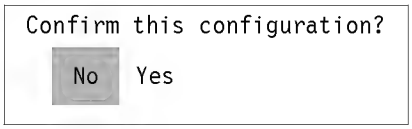
Configuration Menu

The Configuration Menu (Figure 3-10) is used to program and display the parameters for the network and DTE interfaces.

To change configuration parameters:

1. Position the cursor on the desired parameter.
2. Press **[CR]** to scroll through the available options.

If you have made any changes to this menu, when you press X to exit, a confirmation box appears:



The default is **No**. Press **[CR]** or **N** to exit the current screen without saving the changes. If you do want to save the changes, press **Y**.

Mode - sets the speed for both the NI and DTE interfaces. Set it to match the speed of the line provided by the carrier. Select:

56000 bps (DDSI) and *64000 bps* (DDSII Clear Channel)

Timing - sets the timing for the network interface.Only Repeater timing is available when the Mode is set for 64000 bps.

Internal - the Routermate provides both transmit and receive clocks.

External - the Routermate accepts external transmit clock from the DTE and provides receive clock.

Repeater - the Routermate frequency-locks its transmit clock to its receive clock. When the Routermate is attached to a DDS network, set both local and units to Repeater.

If you are using the Routermate as an LDM (56K only), there must be a source for the data clock. This source can be the Routermate (Internal timing) or a DTE (External timing). Typically, the other end is set for Repeater timing; however, it may also be set to Internal or External timing. In LDM mode, never set both ends to Repeater timing.

Respond to RDL - controls the ability to respond to RDL, not the ability to generate the test.

On - allows the Routermate to respond to a remote digital loopback request from the remote end.

Off - prevents the Routermate from responding to a remote digital loopback request. The DSU still responds to Telco CSU and DSU loops when Off is selected.

CTS Control - determines how the CTS lead will function. It also controls whether the Routermate's transmitter will operate in switched or continuous carrier mode.

In switched carrier mode, the Routermate transmits Data Mode towards the network when the RTS lead is On, and transmits Idle when the RTS lead is Off. The remote unit switches its RLSD (DCD) lead On when it receives Data Mode from network and switches RLSD Off when receiving Idle.

In continuous carrier mode, the Routermate transmits Data Mode towards the network regardless of the state of the RTS lead. This causes the RLSD lead on the remote unit to be always On.

Follow RTS (switched carrier) - Clear to Send follows Request to Send.

Forced On (continuous carrier) - Clear to Send always On.

Follow RLSD (continuous carrier) - the CTS lead follows the state of the RLSD (DCD) lead. When Control Mode Idle is received, both the RLSD and CTS leads turn Off.

Follow RLSD/RTS (switched carrier) - this parameter (circuit assurance) causes CTS to be On if both the CTS timing delay has expired and RLSD is On. If RLSD is Off, CTS will also turn Off, but the Routermate will not transmit the control idle code until the RTS signal goes Off.

Figure 3-10 *Configuration Menu*

```
                          Osicom Technologies
                      ROUTERmate-56/64 CSU/DSU


                              Configuration


                      Mode:              56000
                      Timing:            Repeater
                      Respond to RDL:    Enabled
                      CTS Control:       Follows RTS
                      DSR Off In NIS:    No
                      DSR Off DL:        Yes
                      DSR Off LL/RDL:    No
                      DSR Follow DTR:    No




Cursor Down = [Space Bar]                    Scroll Through Options = [CR]
Cursor Up = [Backspace]                                        Exit = [X]
```

SCREEN PATH

Main Menu → *Configuration* → Configuration

The following DSR control options let you control the response of Data Set Ready with respect to certain conditions.

DSR Off In NIS

Yes - causes the DSR signal to turn OFF when the Routermate receives a Not in Service signal, such as OOS (Out of Service) or OOF (Out of Frame).

No - yields a constant DSR ON signal unless one or more of the other DSR OFF parameters have been chosen.

DSR Off DL

Yes - causes the DSR signal to turn OFF when the Routermate has been placed into a digital loop test.

No - yields a constant DSR ON signal unless one or more of the other DSR OFF parameters have been chosen.

DSR Off LL/RDL

Yes - causes the DSR signal to turn OFF when the Routermate has been placed into a local loop or remote digital loop (initiating end).

No - yields a constant DSR ON signal unless one or more of the other DSR OFF parameters have been chosen.

DSR Follow DTR

Yes - causes the Routermate's DSR signal to switch with the DTE's DTR signal.

No - yields a constant DSR ON signal unless one or more of the other DSR OFF parameters have been chosen.

Unit Menu

At the Unit screen, configure supervisory and unit control information. As shown in Figure 3-11, additional options are available when the integral V.32 modem is installed.

If you exit the screen after making changes, you are prompted to confirm the changes.

Header Line 1

Sets the header line that appears at the top of each screen.

The new header is displayed after you confirm the configuration and exit the screen.

Valid input: Up to 40 alphanumeric characters.
Default: *Osicom Technologies*

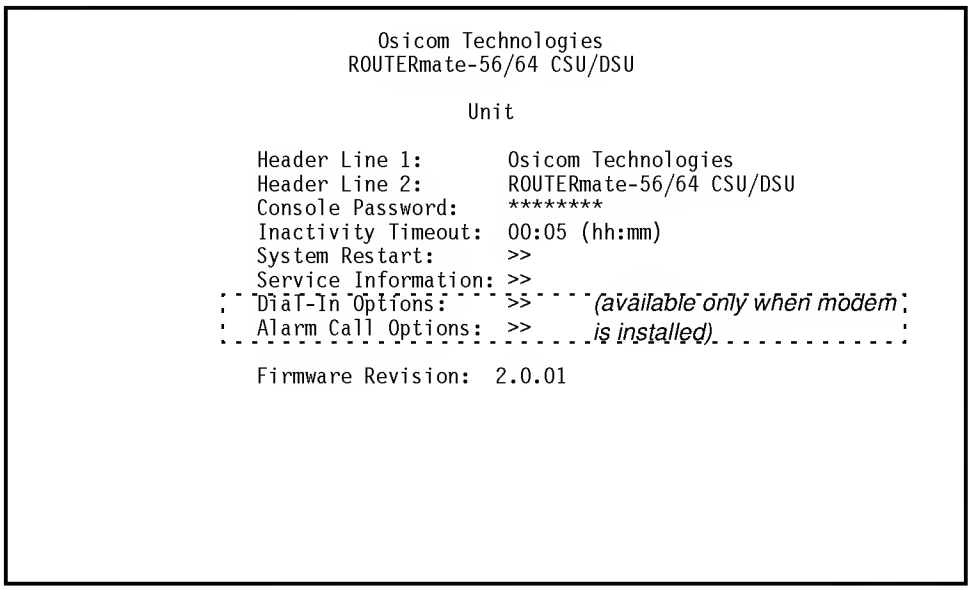
Header Line 2

Sets the header line that appears on the second line of each screen.

The new header is displayed after you confirm the configuration and exit the screen.

Valid input: Up to 40 alphanumeric characters.
Default: *ROUTERmate-56/64*

Figure 3-11 *Unit Menu*



SCREEN PATH

Main Menu → *Unit* → Unit

Console Password

Restricts access to the management screens. The user is prompted to enter this password to access the management screens.

When Logoff is selected at the Main Menu, this password must be entered before the Main Menu can be accessed again.

Valid input: Up to eight alphanumeric characters, case sensitive.

Default: **[CR]**

Inactivity Timeout

Specifies the time that elapses before the console is deactivated, or the Telnet connection is disconnected. If there is no keyboard activity during the specified time, the console is deactivated and access is restricted to users who enter the password. This security feature reduces the opportunity for unauthorized access to the management screens.

Note *Dial-in management: The inactivity timer also disconnects a modem connection, regardless of the device selected.*

Enter the hours and minutes in hh:mm format. You do not need to type the colon.

The maximum time is 23:59. Set the time to 00:00 to disable this feature.

Defaults: non-modem model: :05 (hh:mm)
modem model: :00 (hh:mm)

Firmware Revision

Firmware revision level for the unit.

System Restart

The System Restart screen (Figure 3-12) supports two types of restarts.

System Restart

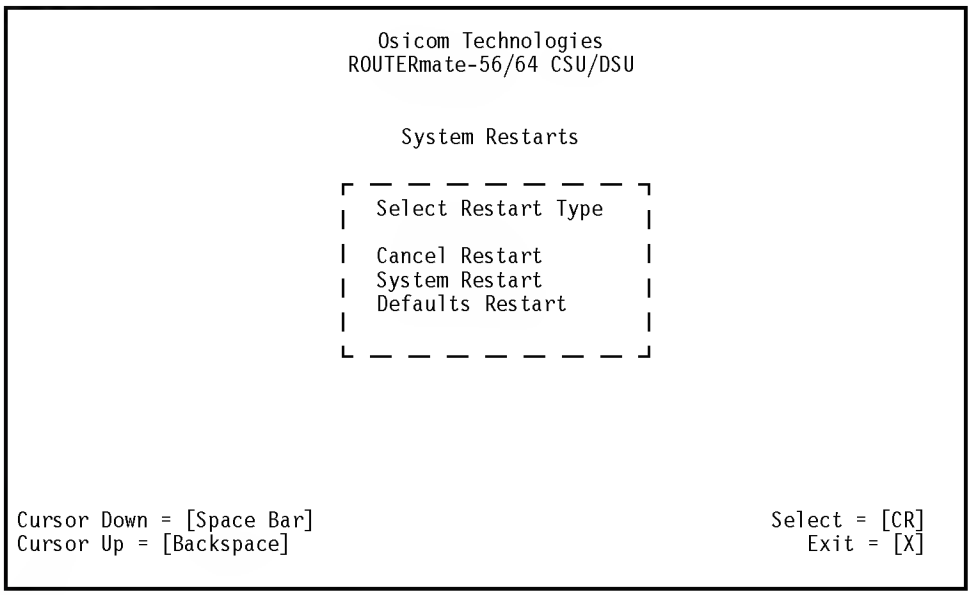
Equivalent to powering the Routermate off and on. Configuration parameters are not affected.

Defaults Restart

Select this option to change all configuration parameters to their default values.

Note *If Defaults Restart is selected, an active Telnet session will be closed. You must re-enter the IP address from a local terminal before you can make another Telnet connection.*

Figure 3-12 *System Restarts*



SCREEN PATH

MainMenu	Unit Menu	System Restarts
Unit	*System Restarts*	

Service Information

Access the Service Information screen (Figure 3-13) from the Unit Menu. View telephone, fax, e-mail, and web site numbers for contacting service personnel.

Figure 3-13 *Service Information*

```
                    Osicom Technologies
                 ROUTERmate-56/64 CSU/DSU

                    Service Information

                 Osicom Technologies, Inc.
                 9020 Junction Drive
                 Annapolis Junction, MD 20701
                 USA

                 Tel:     800-359-2273
                 Fax:     301-317-7220
                 E-Mail:  support@osicom.com
                 Web:     http://www.osicom.com




                                                  Unit Screen = [X]
```

SCREEN PATH

MainMenu	Unit Menu	Service Information
Unit	*Service Information*	

Dial-In Management Options

Access the Dial-In Management Options screen (Figure 3-14) to configure options for the integral modem.

Note *This screen is accessible only when the integral modem is installed.*

Auto Answer

Determines whether the modem answers incoming calls. If Auto Answer is disabled, the modem will not answer the incoming call. This prevents dial-in management.

Default: *Enabled*

Connection Delay

Defines, in seconds, the delay before displaying the Terminal Selection screen. The connection is an interval between going off-hook and sending data. It avoids data loss while the modems get completely trained up.

Valid input: 0 to 30 seconds
Default: *6 seconds*

Figure 3-14 *Dial-In Management Options*

```
                    Osicom Technologies
                 ROUTERmate-56/64 CSU/DSU



                  Dial-In Management Options

               Auto Answer:          Enabled
               Connection Delay:     6
               Security:             Disabled
               Modem Security Code:  ********
               Terminal Type Select: Enabled
               Dial-in Password:     ********
               Escape Character:     126
               Aux Port 0 Name:      Device 0
               Aux Port 1 Name:      Device 1



Cursor Down = [Space Bar]                          Select = [CR]
Cursor Up = [Backspace]                               Exit = [X]
```

SCREEN PATH

Main Menu	Unit	Dial-In Management Options
Unit	*Dial-In Options*	

Modem Security

Determines whether the integral modem participates in a security check during the handshake sequence with an Osicom DCM4232 or DCM4532 modem.

For the security handshake to be implemented, the remote modem must be a DCM4232 or DCM4532.

This feature deters unauthorized entry since the security check takes place before the call is connected. The handshake sequence uses an encrypted password scheme to control access to the dial-in screens.

If using Modem Security, the Modem Security Code must be the same as that of the calling unit.

Default: *Disabled*

Modem Security Code

This code is sent to a remote DCM4232 or DCM4532 modem during the handshake sequence.

To implement, the remote modem must be a DCM4232 or DCM4532, and Modem Security must be set to *Enabled* for the Routermate's integral modem.

Valid input: Up to eight numeric characters.

Default: the string 19961997 (matches the default for the DCM4232 or DCM4532 modem).

Terminal Type Select

Determines whether the Terminal Selection screen is displayed during a dial-in management call. Applies only if Dial-in Password is configured.

Default: *Enabled*

Dial-in Password

The user is prompted to enter this password before accessing a dial-in management call.

Valid input: Up to eight alphanumeric characters, case sensitive.

Default: *[CR]*

Escape Character

Defines the escape character that is used as a hot key for switching between multiple devices managed during a dial-in management call.

When only the configured escape character is typed, the user is returned to the Device Selection Menu.

When the character is typed and then followed within 1.5 seconds by a number 0-2, the result is as follows:

- **0** - switch to Device 0 connected to the CONSOLE interface (usually a router)
- **1** - switch to Device 1 connected to the CONSOLE interface (always an optional FPX4802/DES Frame Relay Encryptor)
- **2** - switch to the Routermate management screens

Wait 200 milliseconds after entering other data before using a hot key. Type a number 0-2, or L, within 1.5 seconds of typing the escape character or you go to the Device Selection Menu.

When a hot key is used to return to a device, it returns to the same screen it originally left.

Valid input: 0-255 (decimal representation for ASCII characters).

Default: 126 (decimal representation for the ASCII tilde (~) character).

Aux Port 0 Name

Aux Port 1 Name

The Aux Port Names are mnemonics to assist the user in determining what device is attached to which port on the console adapter. The string appears in the Device Selection Menu after
0 - AUX Port 0: and **1 - AUX Port 1:**.

Valid input: Up to 30 alphanumeric characters.
Defaults: Device 0; Device 1

Alarm Call Options

Note *This screen is accessible only when the integral modem is installed.*

The Alarm Call Options screen (Figure 3-15) provides the parameters to allow the user to enable, and to limit the use of the modem to send alarm notifications to an ASCII device attached to a remote modem.

The output of each call is in the format below:

```
FROM: <Unit ID Text>  AT: <Unit's phone number>
 dd.hh:mm:ss.cc  <Alarm description text>
 dd.hh:mm:ss.cc  <Alarm description text>
 ...
 dd.hh:mm:ss.cc  <Alarm description text>
END
```

There is a newline sequence (carriage return, line feed) before the first line, and after all of the lines.

The dd.hh:mm:ss.cc is the SNMP systemUpTime at the time the alarm notification was started. The actual alarm condition may have been present earlier, due to configured trapDelay and Inter-Call Interval settings.

dd = days, hh = hours, mm = minutes, and cc = 100ths of a second.

When the unit first powers on and its NI interface is not connected to anything, an alarm notification is generated in the first call, and looks something like:

```
FROM: My ROUTERmate  AT: 3013172222
 00.00:00:10.51  NI - No Signal
END
```

Alarm Call Operation

Determines whether the Alarm Call feature is used.

Enabled - unit will attempt to dial out if the CSU detects a change in the NI alarm conditions.

Disabled - Alarm Call feature is disabled; no calls will be attempted.

Default: *Disabled*

Unit ID String

Identification text that is sent to the logging device along with the alarm description text. It is intended to describe the unit that is sending the alarm.

Valid input: 30 characters
Default: *Blank*

Unit Phone Number

The telephone number of the modem integral to the CSU. This is printed out in the alarm notification to make it easier for support personnel to identify the calling unit.

Valid input: 20 characters
Default: *Blank*

Dial Phone Number

The number to be dialed when the alarm call is made. Special characters can be used in the number to control dialing, as follows:

- **P** - pulse dial
- **T** - tone dial (default)
- **,** - delay 2 seconds
- **W** - wait for dial tone

Valid input: 20 characters
Default: *Blank*

Modem Security

Determines whether the integral modem participates in a security check during the handshake sequence with an Osicom DCM4232 or DCM4532 modem.

Figure 3-15 *Alarm Call Options*

```
                    Osicom Technologies
                 ROUTERmate-56/64 CSU/DSU



                       Alarm Call Options

              Alarm Call Operation: Disabled
              Unit ID String:       RM5664
              Unit Phone Number:
              Dial Phone Number:
              Modem Security:       Enabled
              Modem Security Code:  ********
              Max Call Retries:     5
              Max Minutes Online:   20
              Max Calls Per Day:    20
              Time Between Calls:   5 m


Cursor Down = [Space Bar]                          Select = [CR]
Cursor Up = [Backspace]                               Exit = [X]
```

SCREEN PATH

Main Menu	Unit	Alarm Call Options
Unit	*Alarm Call Options*	

For the security handshake to be implemented, the remote modem must be a DCM4232 or DCM4532.

If using Modem Security, the **Modem Security Code** must be the same as that of the answering modem.

Default: *Disabled*

Modem Security Code

This code is sent to a remote DCM4232 or DCM4532 modem during the handshake sequence.

To implement, the remote modem must be a DCM4232 or DCM4532, and Modem Security must be set to Enabled for the Routermate's integral modem.

Valid input: Up to eight numeric characters.
Default: the string *19961997* (the default for the DCM4232 or DCM4532 modem).

Max Call Retries

The number of times to retry a failed call before giving up.

Valid input: 0 to 10
Default: 5

Max Minutes Online

Maximum number of total minutes the alarm call can be online per day. This limits billing in situations where many calls are being made.

Valid input: 0 to 1440
Default: 20

Max Calls Per Day

Maximum number of calls that can be made per day. This feature provides a way to prevent the CSU from making an excessive number of calls.

Valid input: 0 to 999
Default: 20

Time Between Calls

Allows a time window to permit dial-in access between alarm notification calls. Also a way to prevent an excessive number of calls from being made in a short time.

Valid input: 30 seconds to 1 hour
Default: 5 min

Management Menu

The Management menu (Figure 3-16) is used to configure management parameters for SNMP and Telnet operation.

If you have made any changes to this menu, when you press X to exit, a confirmation box appears:

```
Confirm this configuration?
   No   Yes
```

The default is **No**. Press **[CR]** or **N** to exit the current screen without saving the changes. If you do want to save the changes, press **Y**.

Select SNMP Trap Client Table to display the SNMP Trap Client Table screen.

Internet Address

The IP (Internet Protocol) address that is assigned to the Routermate 56/64.

IP Subnet Mask

A subnet mask is not required for the Routermate 56/64 to operate. It is suggested, however, you enter the same subnet mask as the router or terminal server to which the Routermate is attached.

Figure 3-16 *Management Menu*

```
                        Osicom Technologies
                    ROUTERmate-56/64 CSU/DSU

                            Management

                  Internet Address:          0.0.0.0
                  IP Subnet Mask:            0.0.0.0
                  SLIP Max Trans Unit:       296

                  Access via telnet:         Enabled
                  SNMP R/O Community:        public
                  SNMP R/W Community:        private
                  Authentication Traps:      Enabled
                  Enterprise Traps:          Enabled
                  Trap Sending Delay:        Enabled
                  Auto Learn Clients:        Enabled

                  SNMP Trap Client Table:    >>


Cursor Down = [Space Bar]                          Edit Field = [CR]
Cursor Up = [Backspace]                                   Exit = [X]
```

SCREEN PATH

Main Menu	Management
Management	

SLIP Max Trans Unit

The MTU (Maximum Transmission Unit) for the SNMP interface. This length does not include the IP header, which is usually 20 bytes. The options are:

296, 576, 1492, and 1500

Frames longer than the maximum packet size will be fragmented before transmission.

Access via telnet

Provides a security feature; if disabled, Telnet access of management screens is prevented. Select:

Enabled - telnet access is permitted.
Disabled - telnet access is prevented.

SNMP R/O Community

The community string used for read-only access to the Routermate 56/64's MIB (Management Information Base) objects. Position the cursor on the field and press **[CR]**; type the string and press **[CR]** again.

SNMP R/W Community

The community string used for read-write access to the Routermate 56/64's MIB objects. If this is set to the same value as the read-only string, write access is prevented.

Position the cursor on the field and press **[CR]**; type the string and press **[CR]** again.

SNMP community strings are not included in the enterprise MIB; this is to prevent a user with read-only privileges from viewing the community strings.

Authentication Traps

Enable/disable authentication traps sent by the router when an SNMP request is received with an invalid community string. A trap is an unsolicited alarm or event.

Enabled - allows alarm messages.
Disabled - prevents alarm messages.

Enterprise Traps

An enterprise trap (or alarm) is unsolicited information from an agent to the management station. Traps are the only type of unsolicited data that is permitted with SNMP. They occur only when a threshold within the agent is violated or when a major event occurs.

Enabled - enterprise specific traps are sent to the management station.
Disabled - enterprise specific traps are not sent to the management station.

Trap	Description
niUpTrap	Network interface is up and working
noSignalTrap	No signal received from the network (LOS)
outOfServiceTrap	Network interface is out of service (OOS)
outOfFrameTrap	Network interface is out of frame (OOF)

Trap Sending Delay

This option permits the user to delay the generation of enterprise traps and alarm calls. During the delay interval, if the trap condition clears, no trap is sent. This provides a means of reducing the number of traps emitted for transient conditions.

None - all traps will be sent immediately.

Traps can be delayed by 10s, 30s, 1min, 2min, 3min, and 4 minutes.

Auto Learn Clients

For SNMP, determines whether the Routermate 56/64 automatically learns the IP addresses of SNMP management stations (clients) to whom SNMP traps are to be sent. Select:

Enabled - the Routermate 56/64 learns the IP addresses of SNMP management stations from incoming messages and stores the addresses in the Routermate's client address table. When events occur, traps are sent to each address in the client address table.

The IP addresses of up to 16 SNMP management stations can be learned automatically. The Routermate learns, on an ongoing basis, the IP addresses of the 16 most recent management stations to access the Routermate 56/64.

Disabled - the Routermate 56/64 does not learn the IP addresses of SNMP management stations. Traps are sent only to the IP addresses of any SNMP Trap Clients that are manually entered.

SNMP Trap Client Table

Select SNMP Trap Client Table at the Management screen to display the SNMP Trap Client Table (Figure 3-17).

A trap client is an SNMP management station to which SNMP traps are routed. A trap client is identified by configuring an IP address for each of up to sixteen SNMP management stations.

A trap, which is the SNMP term for an alarm or event, is unsolicited information from an SNMP agent to an SNMP management station. Traps are the only type of unsolicited data that is permitted with SNMP. A trap occurs only when a threshold within the agent is violated or when a major event occurs.

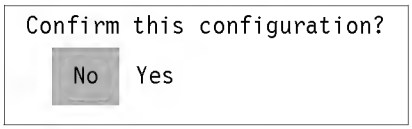
The following MIB-II traps are reported:

Link Up (refers to the NI interface)
Link Down (refers to the NI interface)
Warm start
Cold start
Authentication

To configure an address:

1. Position the cursor on an address in the Client Address column and press **[CR]**.
2. Type the address using decimal numbers and separating each address segment with a decimal point.
3. Press **[CR]** to exit the field.

If you have made any changes to this menu, when you press X to exit, a confirmation box appears:



The default is **No**. Press **[CR]** or **N** to exit the current screen without saving the changes. If you do want to save the changes, press **Y**.

Client Address - the IP address for the SNMP management station to which SNMP traps are to be sent.

IP addresses are 32-bit numbers that are configured in 4-position, dotted decimal notation. To configure an address, move the cursor to an address field in the Client Address column and press **[CR]**. Type the address using decimal numbers and separating each address segment with a decimal point. Press **[CR]** to exit the field.

Type - identifies a trap client as one of the following:

Dynamic - the IP address for this trap client was learned automatically from an incoming SNMP message.

Static - the IP address for this trap client was configured manually.

------- - no address is assigned.

IP addresses for trap clients can be configured manually, or automatically learned.

For automatic address learning, see Auto Learn Clients on page 3-31. Any addresses that are not entered manually can be learned automatically.

If it is desirable to limit the management stations to which traps are sent, the IP addresses for those management stations can be configured manually and the autolearn feature disabled. In this case, only those management stations whose IP addresses have been configured manually will receive traps from the Routermate 56/64.

Figure 3-17 *SNMP Trap Client Table*

```
                          Osicom Technologies
                      ROUTERmate-56/64 CSU/DSU


                        SNMP Trap Client Table

      Client Address      Type            Client Address      Type
      125.45.45.46        Dynamic         0.0.0.0             ------
      125.45.45.47        Static          0.0.0.0             ------
      0.0.0.0             ------          0.0.0.0             ------
      0.0.0.0             ------          0.0.0.0             ------
      0.0.0.0             ------          0.0.0.0             ------
      0.0.0.0             ------          0.0.0.0             ------
      0.0.0.0             ------          0.0.0.0             ------
      0.0.0.0             ------          0.0.0.0             ------


Cursor Down = [Space Bar]                                Edit Field = [CR]
Cursor Up = [Backspace]                                         Exit = [X]
```

SCREEN PATH

Main Menu	Management	SNMP Trap Client Table
Management	*SNMP Trap Client Table*	